

CLAIM AMENDMENTS

1. (Currently Amended)

A Silicon silicon nitride mould crucible parts, particularly crucibles for use in connection with directional solidification and pulling of silicon single crystals, characterized in that where the crucible the mould parts consist consisting of Si_3N_4 particles made by nitriding compacted particulate silicon, the crucible has pores, having a total open porosity between 40 and 60% by volume, and where more than 50% of the pores in the a surface of the mould parts crucible has have a size which is larger than the means size of the Si_3N_4 particles.

2. (Currently Amended)

The crucible ~~Mould parts~~ according to claim 1, characterized in that wherein the crucible is ~~mould parts are~~ coated with silicon nitride particles having an average particle size of less than $50\text{ }\mu\text{m}$.

3. (Withdrawn)

Method for the production of silicon nitride mould parts, particularly crucibles for use in connection with directional solidification of silicon, where particulate silicon having a particle size of less than $100\text{ }\mu\text{m}$ is formed to a mould part and subjected to nitridation for conversion of the silicon particles to Si_3N_4 , characterized in that the forming is carried out under such a pressure and with such a particle size distribution of the silicon particles that the finished silicon nitride mould part has an open porosity between 40 and 60% by volume and

where more than 50% of the pores in the surface of the finished mould part are greater than the mean size of the Si_3N_4 particles.

4. (Withdrawn)

Method according to claim 3, characterized in that the shaping of the mould parts from the silicon particles is carried out at a pressure of below 200 Mpa.

5. (Withdrawn)

Method according to claim 3, characterized in that the shaping of the mould parts are carried out using vibration.

6. (New)

A method of directional solidification and pulling of silicon single crystals, comprising:

filling a crucible with particulate silicon, wherein, the crucible consists of Si_3N_4 particles made by nitriding compacted particulate silicon, the crucible has pores, a total open porosity between 40 and 60% by volume, and more than 50% of the pores in a surface of the crucible has a size which is larger than the means size of the Si_3N_4 particles;

melting the silicon in the crucible in a furnace to form molten silicon in the crucible; and

cooling the molten silicon in the crucible.

7. (New)

The method of claim 6, further comprising:
coating an inside wall surface of the crucible with a silicon nitride particles having an average particle size of less than 50 μm .

8. (New)

The method of claim 6, wherein the melting is conducted in a furnace at a temperature of 1500°C and argon gas is supplied to the furnace.

9. (New)

The method of claim 6, wherein the cooling is conducted initially by lowering the temperature at 60°C per hour until a temperature of 1375°C is reached and then cooling to room temperature.

10. (New)

The crucible of claim 1, wherein the crucible is made from silicon particles having a particle size less than 100 μm .

11. (New)

The crucible of claim 10, wherein the crucible is made by compacting silicon particles at a pressure below 200 Mpa prior to nitrating.

12. (New)

The crucible of claim 11, wherein the compacting is conducted by vibration.